

In The Claims

Please amend the claims as follows:

1. (currently amended) A control method comprising:
traversing a die-strip through a plurality of substations of an in-line semiconductor device assembly line;
automatically examining said die-strip at multiple locations within said plurality of substations using a plurality of automated vision camera systems;
collecting information regarding said examining from said plurality of automated vision camera systems and storing said information in a memory resident database of a manufacturing execution system (MES) central computer system; and
controlling processes of said plurality of substations using a common communication protocol and commands and data issued from said manufacturing execution system (MES) central computer system.
2. (cancelled) A method as described in Claim 1 wherein said central computer system is a manufacturing execution system (MES).
3. (cancelled) A method as described in Claim 1 wherein said common communication protocol is a version of the standard semi equipment communications standard/generic equipment model (SECS/GEM).

4. (currently amended) A method as described in Claim 21 wherein said common communication protocol is a version of the standard semi equipment communications standard/generic equipment model (SECS/GEM).

5. (original) A method as described in Claim 1 wherein said collecting information comprises:

communicating said information from said plurality of automated vision systems to an equipment cell controller; and

communicating said information from said equipment cell controller to said central computer system.

6. (original) A method as described in Claim 5 wherein said controlling comprises:

communicating said commands and data from said central computer system to said equipment cell controller; and

communicating said commands and data from said equipment cell controller to said plurality of substations.

7. (original) A method as described in Claim 1 wherein said plurality of substations comprise a front-of-line portion and an end-of-line portion and wherein said collecting information comprises:

communicating information from a first portion of said plurality of automated vision systems of said front-of-line portion to a first equipment cell controller;

communicating information from a second portion of said plurality of automated vision systems of said end-of-line portion to a second equipment cell controller; and

communicating said information from said first and second equipment cell controllers to said central computer system.

8. (original) A method as described in Claim 7 wherein said controlling comprises:

communicating first commands and data from said central computer system to said first equipment cell controller;

communicating said first commands and data from said first equipment cell controller to said front-of-line portion of said plurality of substations;

communicating second commands and data from said central computer system to said second equipment cell controller; and

communicating said second commands and data from said second equipment cell controller to said end-of-line portion of said plurality of substations.

9. (original) A method as described in Claim 1 wherein said collecting information further comprises determining a location of said die-strip by one of said automated vision camera systems identifying a unique code associated with said die-strip.

10. (original) A method as described in Claim 1 wherein said traversing is controlled by said central computer system.

11-37 (previously cancelled)

38. (previously presented) A method as described in Claim 7 wherein said plurality of substations further comprise:

- a test portion integrated with said end-of-line portion; and
- a finish portion integrated with said test portion.

39. (previously presented) A method as described in Claim 7 wherein said front-of-line portion comprises: a die-attach substation; a cure substation; a first plasma substation; a bond substation and a second plasma substation.

40. (previously presented) A method as described in Claim 7 wherein said end-of-line portion comprises: a mold substation; a post mold cure substation; a ball attach substation; a saw substation; and a sort substation.

41. (previously presented) A method as described in Claim 38 wherein said finish portion comprises: a marking substation; a final visual inspection substation; and a tape and reel substation.

42. (new) A control method comprising:
traversing a die-strip through a plurality of substations of an in-line semiconductor device assembly line;
automatically examining said die-strip at multiple locations within said plurality of substations using a plurality of automated vision camera systems;
collecting information regarding said examining from said plurality of automated vision camera systems and storing said information in a memory resident database of a central computer system; and
controlling processes of said plurality of substations using a version of the standard semi equipment communications standard/generic equipment model (SECS/GEM) and commands and data issued from said central computer system.

43. (new) A method as described in Claim 42 wherein said collecting information comprises:
communicating said information from said plurality of automated vision systems to an equipment cell controller; and

communicating said information from said equipment cell controller to said central computer system.

44. (new) A method as described in Claim 43 wherein said controlling comprises:

communicating said commands and data from said central computer system to said equipment cell controller; and

communicating said commands and data from said equipment cell controller to said plurality of substations.

45. (new) A method as described in Claim 42 wherein said plurality of substations comprise a front-of-line portion and an end-of-line portion and wherein said collecting information comprises:

communicating information from a first portion of said plurality of automated vision systems of said front-of-line portion to a first equipment cell controller;

communicating information from a second portion of said plurality of automated vision systems of said end-of-line portion to a second equipment cell controller; and

communicating said information from said first and second equipment cell controllers to said central computer system.

46. (new) A method as described in Claim 45 wherein said controlling comprises:

communicating first commands and data from said central computer system to said first equipment cell controller;

communicating said first commands and data from said first equipment cell controller to said front-of-line portion of said plurality of substations;

communicating second commands and data from said central computer system to said second equipment cell controller; and

communicating said second commands and data from said second equipment cell controller to said end-of-line portion of said plurality of substations.

47. (new) A method as described in Claim 42 wherein said collecting information further comprises determining a location of said die-strip by one of said automated vision camera systems identifying a unique code associated with said die-strip.

48. (new) A method as described in Claim 42 wherein said traversing is controlled by said central computer system.

49. (new) A method as described in Claim 45 wherein said plurality of substations further comprise:

a test portion integrated with said end-of-line portion; and
a finish portion integrated with said test portion.

50. (new) A method as described in Claim 45 wherein said front-of-line portion comprises: a die-attach substation; a cure substation; a first plasma substation; a bond substation and a second plasma substation.

51. (new) A method as described in Claim 45 wherein said end-of-line portion comprises: a mold substation; a post mold cure substation; a ball attach substation; a saw substation; and a sort substation.

52. (new) A method as described in Claim 49 wherein said finish portion comprises: a marking substation; a final visual inspection substation; and a tape and reel substation.